

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
3 March 2005 (03.03.2005)

PCT

(10) International Publication Number  
**WO 2005/018342 A1**

(51) International Patent Classification<sup>7</sup>: **A23L 1/30**,  
A61K 35/74, A61P 1/02

(21) International Application Number:  
PCT/US2004/025899

(22) International Filing Date: 10 August 2004 (10.08.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/494,169 11 August 2003 (11.08.2003) US

(71) Applicant (for all designated States except US): **ORAGENICS, INC.** [US/US]; 12085 Research Drive, Alachua, FL 32615 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **HILLMAN, Jeffrey, D.** [US/US]; 6424 SW 26th Place, Gainesville, FL 32608 (US).

(74) Agent: **HILLMAN, Lisa, M. W.**; McDonnell Boehnen Hulbert & Berghoff LLP, 300 South Wacker Drive, Chicago, IL 60606 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: COMPOSITIONS AND METHODS FOR THE MAINTENANCE OF ORAL HEALTH

(57) Abstract: The invention provides compositions comprising one or more isolated LDH-deficient *mutans streptococcus* strains and one or more isolated *S. oralis* strains and/or one or more isolated *S. uberis* strains. Compositions of the invention are useful to maintain oral health, by for example treating and/or preventing one or more symptoms of dental caries, periodontitis and/or other oral cavity diseases or wounds.

WO 2005/018342 A1